said distributed network in conjunction with associated unique reservoir area identification indicator for said stored data.

3. The method of claim 2, wherein at least a portion of said data is made selectively available for withdrawal by a software application for analysis, and wherein data tracking is provided whereby said withdrawn data is returned to a correct storage area and is provided with updated data identification indicator.

4. The method of claim 3, wherein new data content for said distributed data network is dynamically created automatically using software scripts.

5. The method of claim 1, in which an optimization tool kit is automatically deployed to select most-likely locations of error in said analysis of said data, wherein said optimization tool kit implements sub-optimization loops between said plurality of computational applications, performing analysis to estimate error using error optimization techniques.

6. The method of claim 5, wherein a fluid flow simulation application wrapper is provided for connectivity between said optimization tool kit and said plurality of computational applications.

7. The method of claim 5, wherein said optimization tool kit is implemented in conjunction with a set of algorithms for computing seismic impedance from a plurality of reservoir rock and fluid parameters, whereby differences between observed and computed seismic impedance for the reservoir can be diminished using said set of algorithms.

8. The method of claim 7, whereby a user is provided with the option of varying at least one of said plurality of reservoir parameters, and wherein a visualization of modeled change in seismic impedance as a result of said varying is provided over said distributed data network, whereby the user is enabled to evaluate impedance data convergence by use of said visualization.

9. The method of claim 1, wherein a three-dimensional graphic display based on data from said plurality of computational applications is accessible through said data network, and wherein said display includes portrayal of locations within the reservoir mapped using locational coordinate data, whereby dynamic display of a time-varying seismic survey for the reservoir may be provided.

10. The method of claim 9, wherein a persistent data services layer is provided for storing versions of at least a portion of said data and characterization-related information during operation of the method, wherein data objects are serialized and versioned, and wherein a user may remotely view said versions over said distributed data network; said persistent data services layer comprising:

(i) a server;

(ii) a repository manager;

(iii) a data object description manager;

(iv) a persistence input/output handler; and

(v) a streamer.

11. The method of claim 1, wherein software application wrappers are provided for coordination of the operations of said plurality of computational applications, said software wrappers comprising software scripts operational (I) to check input data integrity and (II) to call upon functions of said computational applications, said software wrappers further operational (III) to provide notification of completion of an analysis task for said computational applications.

12. The method of claim 1, wherein an event handler is provided for receiving events generated by said computational applications, and wherein said event handler is in periodic communication with said computational applications through polling.

13. The method of claim 12, wherein event clients are generated by the event handler to communicate with an event server through a data connection.

14. The method of claim 12, wherein an event server is provided and is operational for performing a plurality of tasks selected from the group consisting of: (i) registering a plurality of clients, (ii) managing events, and (iii) answering queries from events, and wherein said event server pushes events back to the registered clients using first-in-first out protocols.

15. The method of claim 1, wherein the method is implemented in conjunction with a computational framework comprising foundation classes capable of responding to a plurality of scripting languages, and wherein said foundation classes can be assembled for rapid prototyping of new functionality of said method.

16. The method of claim 15, wherein a utility package of foundation classes is provided for at least one task selected from the group comprising: (i) holding data arrays; (ii) storing and executing algorithms; (iii) storing and executing mathematical strings; (iv) storing resource information; (v) storing and applying unix file descriptors; and (vi) pattern matching., and wherein said utility package can be used to generate new tasks for execution in conjunction with the method.

17. The method of claim 15, wherein a set of data containers comprising geoscience-specific foundation classes is provided for storage of data selected from the group consisting of: (i) 3D sesimic data; (ii) wellbore geometry and log information; (iii) time-depth conversion tables; (iv) velocity volumes; (v) geological horizons and faults; and (vi) fluid flow descriptors for simulation models.

18. The method of claim 17, wherein package filters are provided and are operational to manipulate said data containers algorithmically.

19. The method of claim 15, wherein a set of classes are provided for defining public application program interfaces to said plurality of computational applications, and wherein both input and output data classes are described for each of said computational applications.

20. The method of claim 1, wherein said data comprises geometric data and associated attributes, and wherein said data is associated with a shared earth model through use of a multimeshing application to provide a topological representation of the reservoir, and

wherein said multimeshing application is provided with data containers for geometry data objects and meshes for use by said computational applications.

21. The method of claim 20, wherein said topological representation is implemented using a radial edge data structure operational to represent complex, non-manifold topologies.

22. The method of claim 20, wherein upscaling and downscaling of reservoir simulation meshes is executed in conjunction with said topological representation of the multimeshing system.

23. The method of claim 20, wherein said multmeshing application manipulates voxel information using information derived from said radial edge data structure.

24. The method of claim 20, wherein said shared earth model is built by said multimeshing application at least in part from a set of polygonal surfaces including geometrical and topological elements.

25. The method of claim 20, wherein data relative to individual components of the shared earth model are made available to external software applications according to specific meshing and data input/output requirements of said external software applications.

26. The method of claim 1, wherein said distributed data network comprises an internet connection integrated with functions of said computational applications, and wherein said connection is operative for data input, output, and request functions for said computational applications.

27. A system for analyzing information relative to the time-varying state of a plurality of substances within a subsurface petroleum reservoir, comprising:

(a) a computer server comprising a memory and a processor;

(b) at least one input device to provide data relative to the physical state of at least one fluid within the reservoir;

(c) a data communication path by which at least a portion of said data can be made available for analysis by each of a plurality of computational applications for characterization, by said applications, of traits relating to at least one of :

(1) the location;

(2) the state; and

(3) the volume quantity of the at least one fluid;

(d) computer programming operational for performing additional computational analysis on data, including output data from said plurality of computational applications in element (c), to optimize said characterization of fluid traits;

(e) computer programming operational to monitor change over time in at least one of:

(1) said data;

(2) said characterization, and

(3) characteristics of the optimization of element (d)

to create a historical data profile associated with the characterization of the reservoir data;

(f) computer programming for storing at least a portion of said data and its associated historical data profile in said memory; and

(g) a data link to a distributed data network, for making said data and data profile accessible to at least one user remote from said server,

whereby persistent availability of said data and characterization-related information for the reservoir is permitted.--

CONCLUSION

Applicants respectfully request that this Preliminary Amendment be entered in the above-captioned application, and that this application as amended be considered by the Examiner. A separate copy of the claims as amended, marked to show changes made herein, is attached hereto.

Respectfully submitted,

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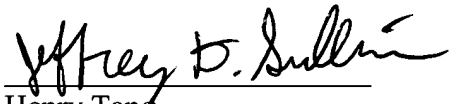

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